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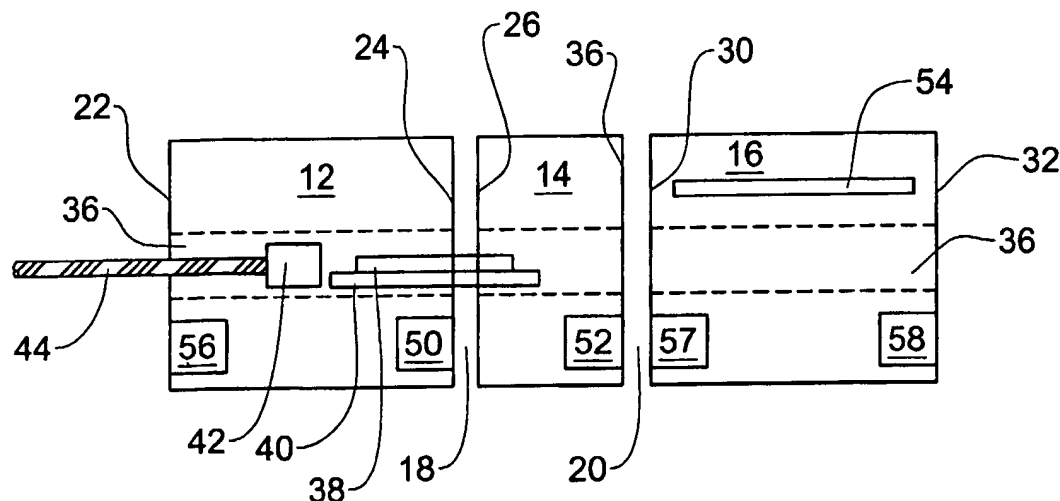
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27 November 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **METHODS AND DEVICE FOR FREEZING AND THAWING BIOLOGICAL SAMPLES**



(57) Abstract: Disclosed is a method for changing the temperature of a sample from an initial temperature via an intermediate temperature to a final temperature, one of the initial and final temperatures being above the freezing point of said sample and the other being below the freezing point. The method is for changing the temperature of a sample having minimal dimension in each of two mutually perpendicular cross-sections exceeding 0.5 centimeters, and at least one of the cross-sections having an outer zone and an inner zone.

INTERNATIONAL SEARCH REPORT

national Application No

PCT/IL 03/00026

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A01N1/02 F25D13/04 F25D13/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A01N F25D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 78504 A (ORGAN RECOVERY SYSTEMS INC) 25 October 2001 (2001-10-25) the whole document	1,2, 31-45
X	WO 98 10231 A (ARAV AMIR ;FRIEDMAN MARK A (IL); INTERFACE MULTIGRAD TECHNOLOGY (I) 12 March 1998 (1998-03-12) cited in the application the whole document	1-62
X	WO 96 21351 A (KORBUTT GREGORY S ;RAJOTTE RAY V (CA); AO ZILIANG (CA); UNIV ALBER) 18 July 1996 (1996-07-18) the whole document	1,2, 31-45

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

15 April 2003

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07.08.2003

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL 03/00026

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-62

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-62

Method and devices for changing the temperature of a sample involving different temperature steps.

2. Claims: 63-64

Method for preserving semen from a single donor by freezing the whole ejaculate in one sample.

3. Claims: 65-74

A method of freezing thawed semen in several aliquots.

4. Claim : 75

Method for preserving semen by freezing a sample admixed with an extender.

5. Claims: 76-77

Method for preserving semen by freezing a mixture from several donors.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IL 03/00026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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